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BICYCLE PARKING AT THE WORKPLACE

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Council



NOVEMBER 1983

BICYCLE PARKING AT THE WORKPLACE

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The list of products and manufacturers herein is not intended to be inclusive, nor to endorse any product or manufacturer. It is for information only, and will be amended from time to time as additional information is obtained on new or other products and manufacturers.

This publication has been produced for the use of area firms by the Metropolitan Area Planning Council (MAPC), the regional planning agency for the 101 cities and towns in the Boston metropolitan area. Funds for this publication were provided through Grant MA-19-0013 of the Environmental Protection Agency's Section 175 Air Quality program, administered through the Urban Mass Transportation Administration. This program has allowed MAPC to explore bicycle commuting as one means of reducing air pollution in the Boston metropolitan area. Bicycle commuting offers other advantages - reduced parking space needs, improved employee health and efficiency, and a decrease in traffic congestion.

In its brochure, Bicycle Commuting: A Guide For Employers, MAPC has identified incentives employers can offer to encourage bicycle commuting. A free copy of this brochure may be obtained by contacting MAPC, 110 Tremont Street, Boston, Massachusetts 02108, (617) 451-2770.

Some of the information in this pamphlet was obtained from:

Bicycle Parking by Ellen Fletcher, 777-108 San Antonio Road, Palo Alto, California, 1983.

Bicycle Parking in Indianapolis by County of Indianapolis - Marion, IN, 1981.

This document was written by William Schwartz, MAPC Transportation Planner.

A very faint, blurry background image of a classical building with four prominent columns, possibly a temple or a large hall, centered in the frame.

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Introduction

The lack of secure parking facilities at the workplace is a deterrent to bicycle commuting. By providing secure bicycle parking at your plant or office, you can encourage employees to ride to work by bike. There is a wide array of equipment available for storing bicycles, providing different levels of security and protection from the elements. These are divided into three classes as follows:

High security, long term parking which offers complete protection from theft, vandalism and weather. Bike lockers or attended covered parking are examples.

Medium security parking which protects against theft but not against weather or vandalism. Both wheels and the frame are secured to the rack or post with a simple user supplied lock, but without the need for cables or chains supplied by the user.

Minimum security "bike racks" or fixed objects that protect against theft but only in conjunction with a user-supplied cable, chain and lock. Racks are more likely to cause damage to bikes due to crowding.

Class I Parking

This is the most secure type of bike storage since bikes are protected from both theft and inclement weather. These facilities are best for commuters who must leave their bicycles for long periods of time. There are several types of Class I facilities, all offering similar high levels of protection at varying costs. These include:

<u>FACILITY/EQUIPMENT TYPE</u>	<u>COST</u>
<u>Inside Storage Facility</u>	
The bicyclist may bring the bike inside the building and store it next to or near his/her desk.	No Cost

Monitored Parking

This is a facility usually under constant surveillance located adjacent to a parking attendant booth in a garage or under another form of surveillance. The actual equipment can be a bike rack of Class II variety.

The cost of the rack is the only real cost of this facility.

FACILITY/EQUIPMENT TYPE (Continued)CostCheck-In Service

This is an attended bike parking facility operated in a manner similar to a coat check room in a restaurant.

Minimal if attendant already available and performing other tasks.

Bicycle Lockers

These are fully enclosed lockers made available to bicycle users. The lockers may be placed outside, hold 2 bikes each, are very secure and are one of the most popular means of storage. Each locker has a separate bicycle space.

\$225-\$1000 per bicycle space

Available Class I Bicycle Parking Equipment

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Notes</u>
Bike Lokr (see below)	Bike Lockers, LTD P.O. Box 445 W. Sacramento, CA 95691 (916) 372-6620	M-2	\$400.00 per unit (2 bicycles)	<ul style="list-style-type: none">• Standard double compartmented, weather resistant bicycle locker.• Holds two bicycles.• Comes with 7 pin tubular key lock.• May be purchased with aluminium casing.
	East Coast Representative: Morton Booth Company P.O. Box 123 Joplin, MO 64801 Attention: Dave Ruff (417) 673-1962		\$345 per unit for 20-49 units.	

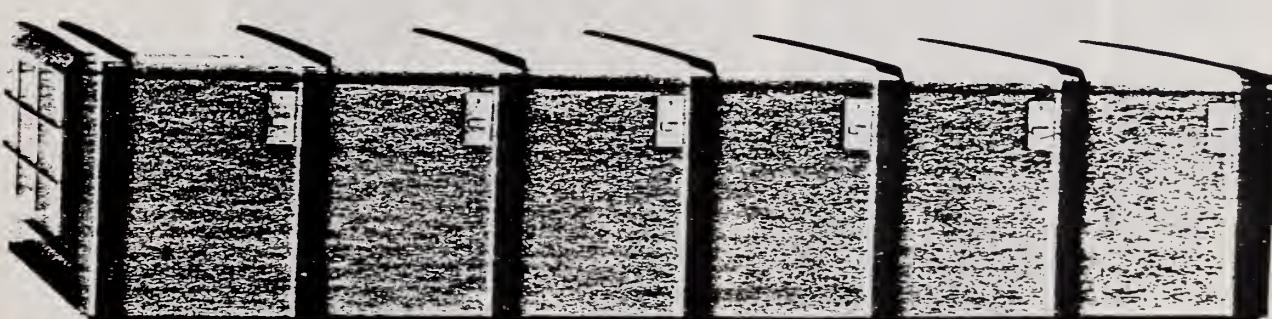


Class I Parking Equipment (Continued)

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Notes</u>
Bike Stable (not pictured)	Bike Stable Co. P.O. Box 1402 South Bend, In 46624 (219) 233-7060		\$1,000 per unit	• Enclosed bicycle locker, holds one bicycle (hanging by front wheel)
Cycle-Safe	Cycle-Safe Division Philip Johnson Corp. 326 Terminal St., S.W. Grand Rapids, MI 46508	1	\$630.00 per unit (2 bicycles)	• Double com- partmented Bicycle locker.

\$400.00 per end panel kit (required for each grouping)

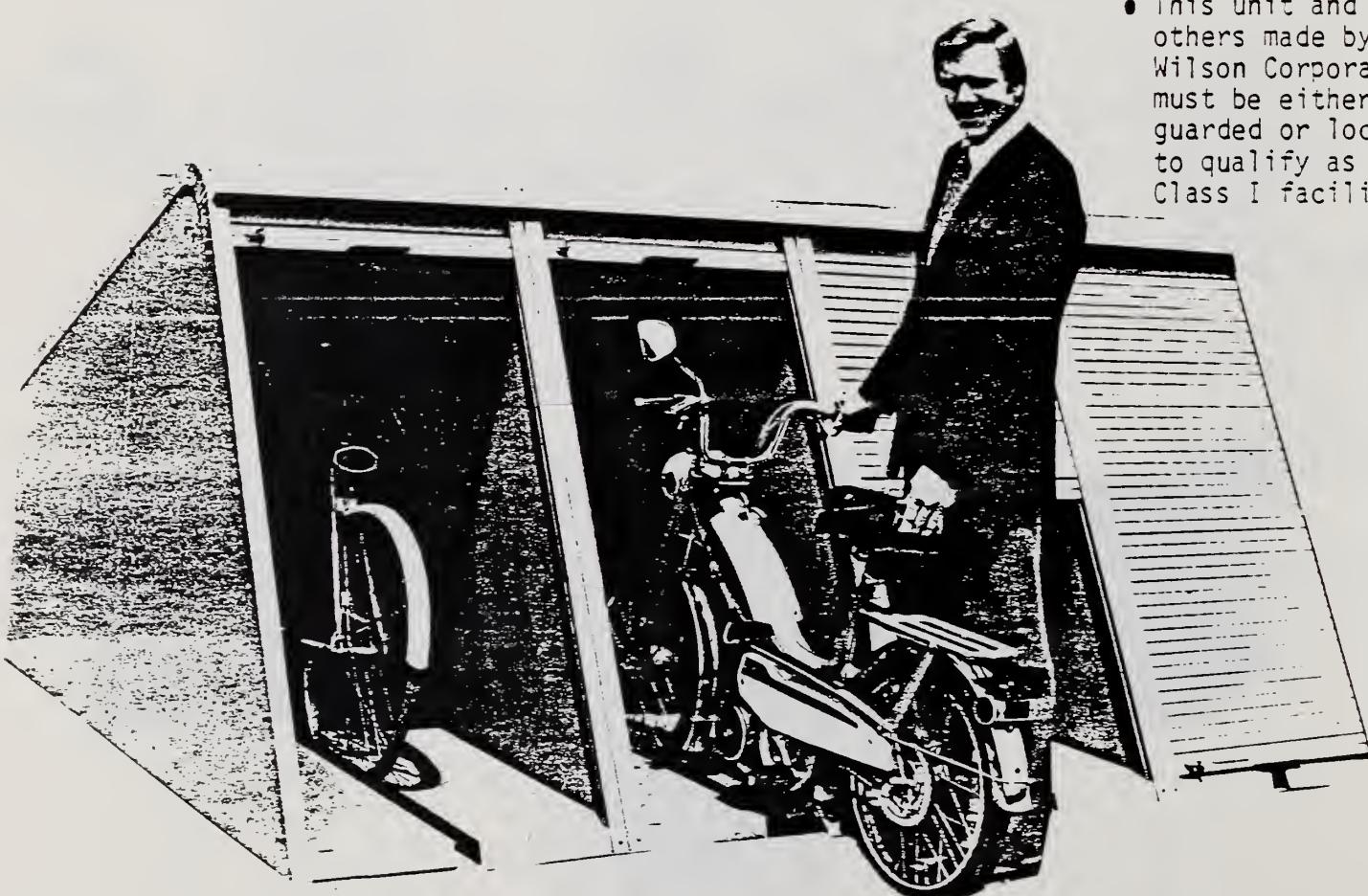
- Holds two bicycles.
- There is a 6 bike minimum order



CYCLE SAFE

Class I Bicycle Parking Equipment (Continued)

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Notes</u>
Park 'n' Lock Bike Garage	J.G. Wilson Corp. P.O. Box 599 Norfolk, VA 23501	TM-22 BG	\$1,975 per unit (2 bicycles)	<ul style="list-style-type: none"> • This unit holds two bikes with individual locking shutters (provision for padlock).
	Representative: Pierce Building Products, Inc. 212A Mass. Ave Arlington, MA 02174 (617) 648-3207/8	TM-331	\$1,681	<ul style="list-style-type: none"> • Coin/key mechanism is available for \$600. • Units with single locking shutter for 3 bikes (provision for padlock). • This unit and others made by Wilson Corporation must be either guarded or locked to qualify as Class I facility.

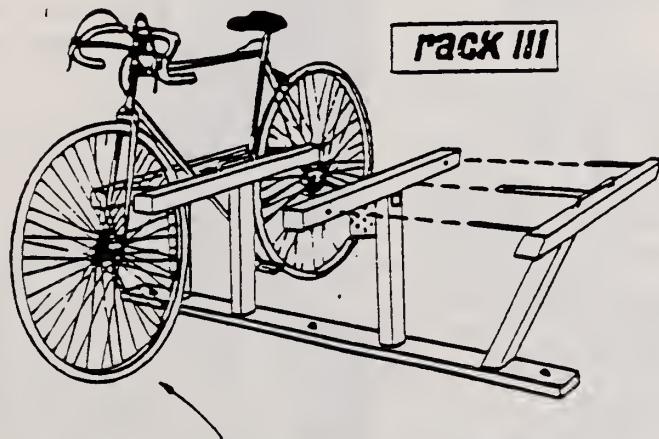


Class II Parking

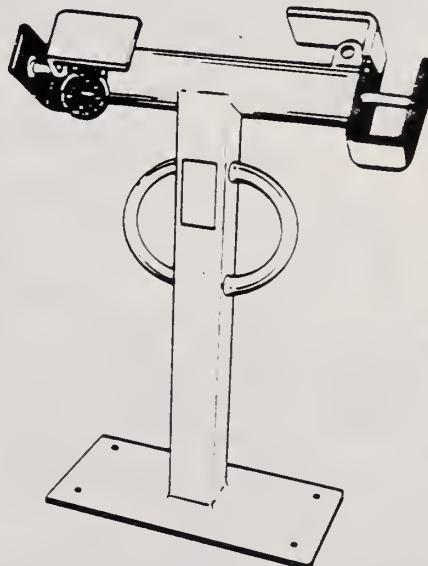
Class II parking protects bikes from theft by securing both wheels, yet leaves the bikes exposed to weather. Many types of Class II bike racks, which should be installed in a conspicuous location, are available on the market. These vary from a parking-meter type of post with an attached cable to a mechanical device which locks both wheels with a bar. Some models provide lock shields which restrict access to the lock and reduce the chances of theft.

Class II Parking Equipment

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Parking Spaces Per Unit</u>	<u>Notes</u>
U-LOK	Sunshine Recreation, Inc. 31129 Via Colinas Suite 704 Westlake Village, CA 91362 (213) 707-0110	ULOK I	\$ 39.00	1	• Parking-meter mount
		ULOK II	\$ 79.00	2	• All U-LOKs attach to down tube part of bike
		ULOK III	\$ 99.00	4	
		ULOK V	\$ 99.00	4	• Space saver option available



MOVEABLE ARM CLOSES TO PROTECT FRAME AND BOTH WHEELS WITHOUT NEED OF HEAVY CHAIN OR CABLES.

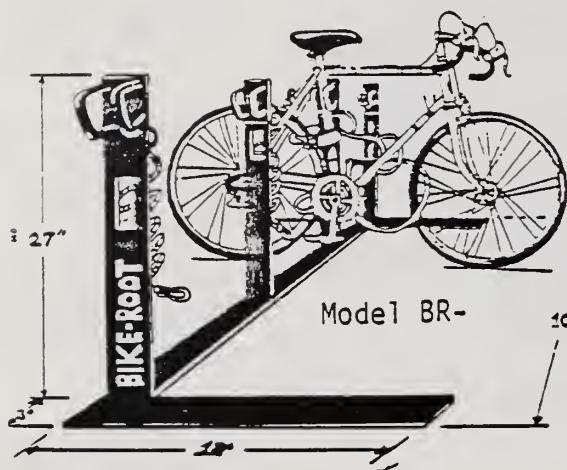


U-Lok II: Dual Option

Rack III	3661 Grand Avenue Oakland, CA 94610 (415) 835-8058	P	\$136.00	2	• Device locks both wheels with metal bars. Lock is shielded from theft.
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Class II Parking Equipment Continued

Name	Manufacturer-Address	Model	Price	Parking Spaces Per Unit	Notes
BIKE ROOT	Space Lattice Co. 14 Avon Place Cambridge, MA 02140 (617) 547-5755	Bike Root- BR1H	\$ 36.00	1	• Bike rack with cable to secure both wheels.
		Bike Root- BR5H	\$240.00	5	
		Bike Wheel Shield	\$ 32.00	1	• Front wheel housing
		Bike Sky-hook	\$ 15.00	1	• Ceiling mount vertical bike storage
		Bike Post	\$40.00	1	• Rack secures down tube and front wheel

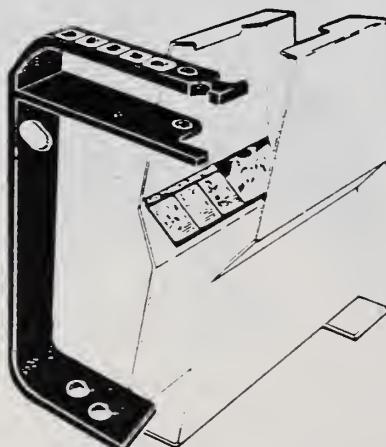


Other equipment is available from this company.

Rally-Racks	P.O. Box 299 Sonoma, CA 94516 (707) 938-4744	RR100	\$ 41.50	1	• Lock & cable required
		RR200	\$ 47.50	1	• Lock only required
		RR300	\$ 98.50	1	• Comes with wheel housing
		RR400	\$264.00	1	• Same as 300 but with key/coin system (minimum of 7 required).

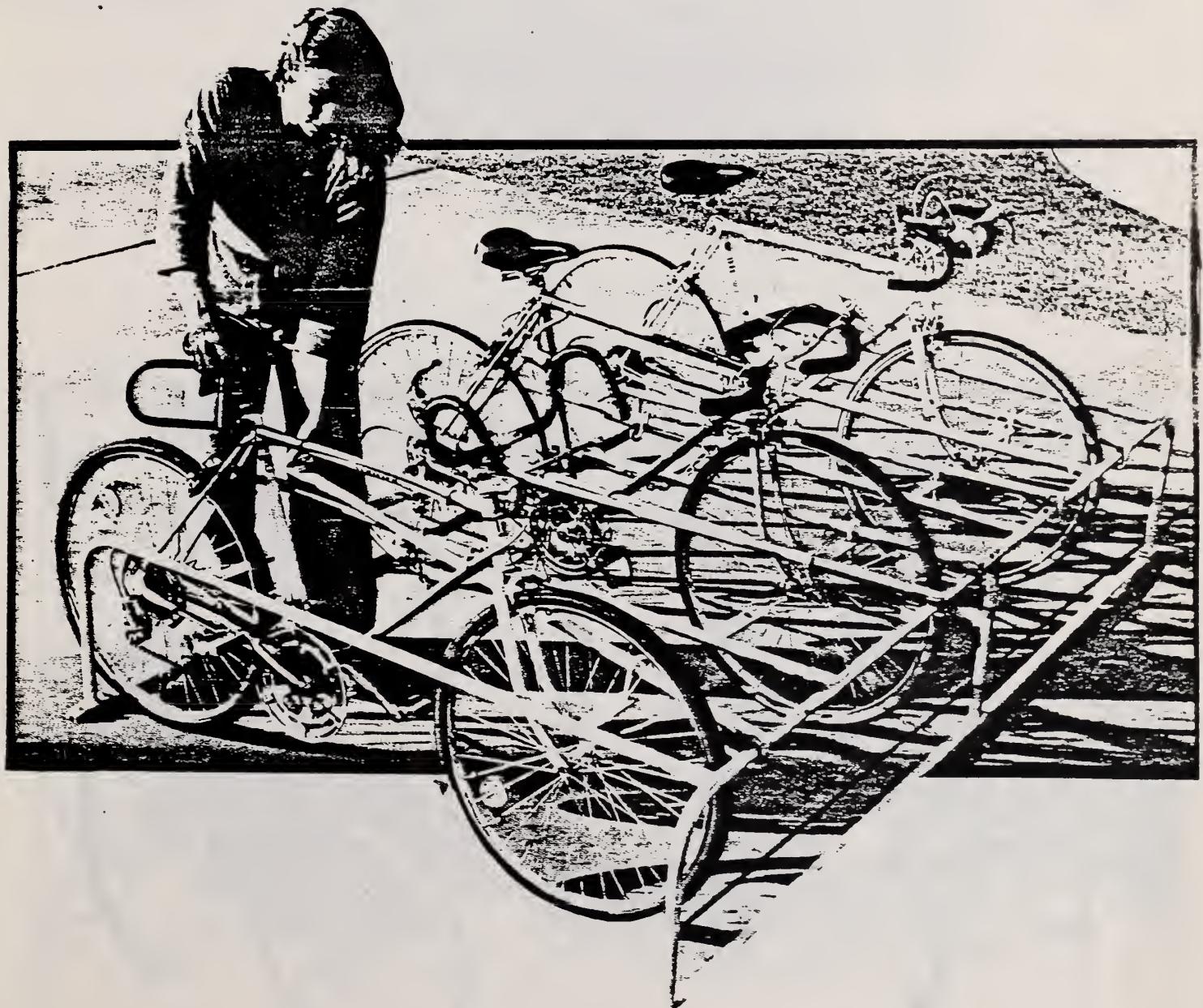
*Model RR100, when not accompanied by the wheel housing is a class III device.

RR-300



Class II Parking Equipment (Continued)

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Parking Spaces Per Unit</u>	<u>Notes</u>
Bike Safe	Patterson Williams P.O. Box 4040 Santa Clara, CA 95054 (408) 988-3066	1615	\$225.00	2	• Secures both wheels without cables
		1615	\$340.00	5	

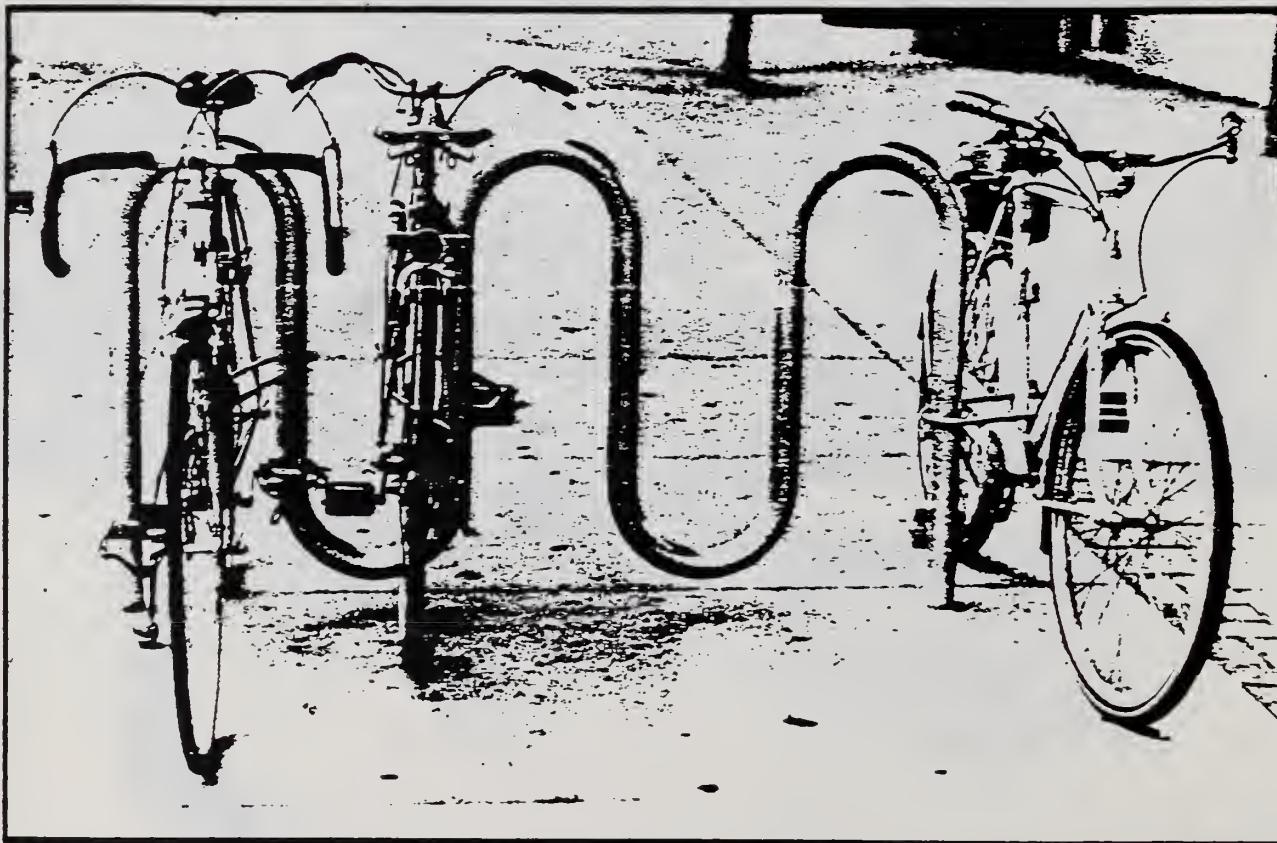


Class III Parking

Class III facilities, when used alone, are the least secure method of storing bicycles. These consist of conventional vertical bar type racks as well as stationary objects (parking meters, lamp posts, young trees, etc.). These facilities provide light security, useful for providing short-term parking. Class III racks may also be used in a security-enhanced situation such as a monitored parking facility or a storage closet (see Class I description).

There are many Class III facilities available on the market. Some manufacturers are:

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Parking Spaces Per Unit</u>	<u>Notes</u>
Ribbon Rack	Brandir International 200 Park Avenue Suite 303E New York, NY 10166 (212) 505,6500	RB-5	\$395.00	5	• Modular unit secures frame and one wheel
		RB-7	\$485.00	7	
		RB-9	\$675.00	9	
		RB-11	\$765.00	11	

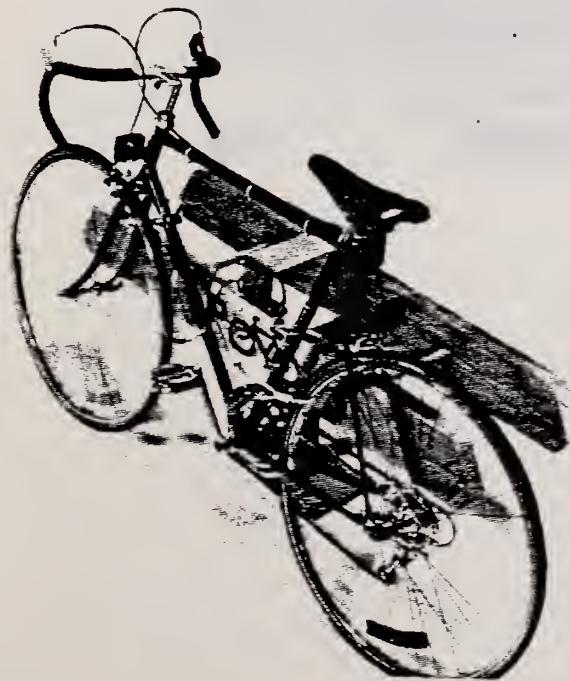


Class III Parking Equipment (Continued)

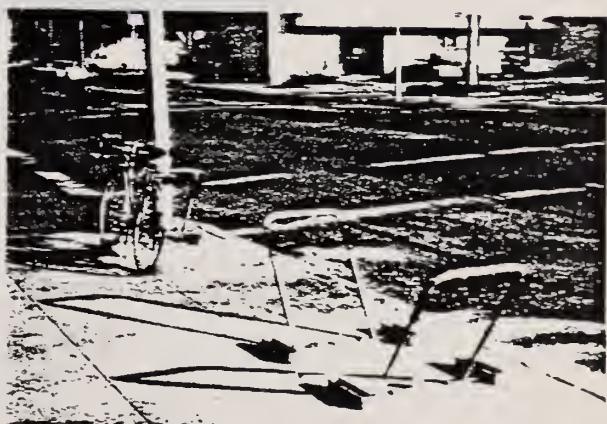
<u>Name</u>	<u>Manufacturer-Address</u>	<u>Model</u>	<u>Price</u>	<u>Parking Spaces per unit</u>	<u>Notes</u>
Cycle Guard	Bicycle Parking Systems P.O. Box 64 Itasca, IL 60413	100	\$ 39.00	1	• No cable provided
		100C	\$ 58.00	1	• Cable provided



Bike Bar	Bikeways Products	\$ 78.00	2	• Also comes in larger sizes
Bike Panel	1125 16th Street Bellingham, WA 98225 (206) 671-2583	\$138.00	2	



BIKE PANEL



BIKE BAR

Class III Parking Equipment (Continued)

<u>Name</u>	<u>Manufacturer-Address</u>	<u>Price</u>	<u>Parking Spaces per unit</u>	<u>Notes</u>
Bicycle Hitch	Hitch-2, Inc. P.O. Box 7342 Philadelphia, PA 19101 (215) 387-4338	No Price Available	2	<ul style="list-style-type: none"> • Model A without chains • Model B with chains



If you have a machine shop and would like to build your own Class II racks, follow the instructions on the specification sheet (Appendix A). If you have questions about this design, contact the Massachusetts Department of Environmental Management, Room 1309, Leverett Saltonstall Building, 100 Cambridge Street, Boston, Massachusetts 02202 (617-727-3174).

Location of Parking Facilities

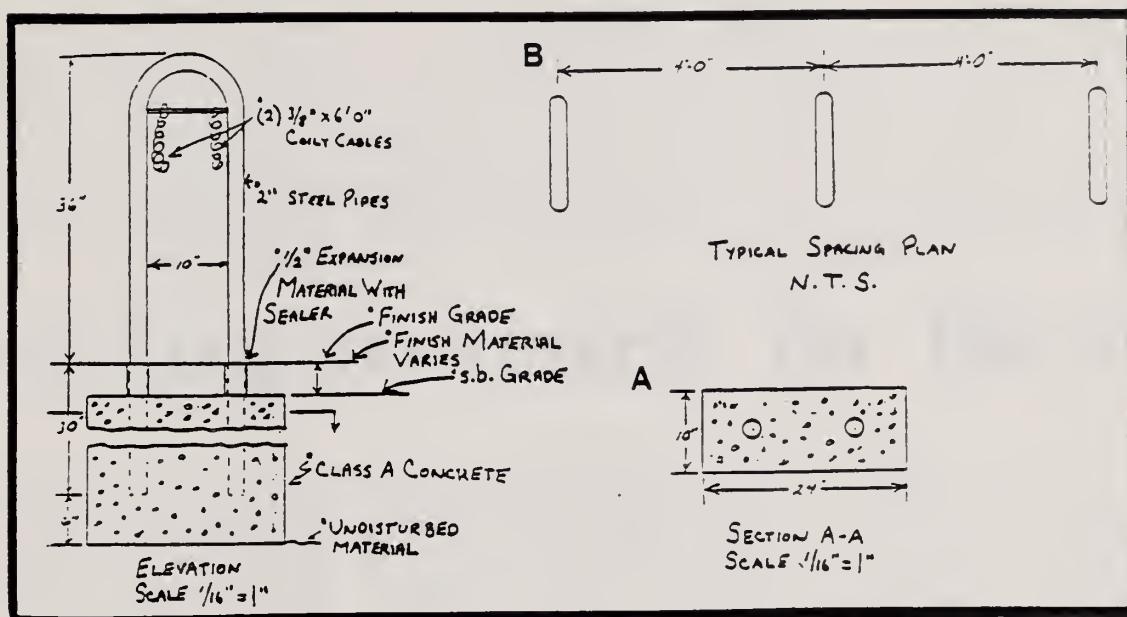
Bicycle parking facilities should be located in highly visible areas to minimize theft and vandalism. Where feasible, the facility should be visible to persons in the building and located at least as closely as the most convenient auto parking. For general pointers on bicycle commuting, read the enclosed June 8, 1981 article from Business Week.



Appendix A

SPECIFICATIONS FOR BUILDING YOUR OWN BICYCLE RACK

Designed by Robert Freedman
Massachusetts Department of Environmental Management
Telephone: 727-3174



1. 2" nominal standard weight pipe.
2. Pipe and horizontal rod to be hot-dipped galvanized and "Color Galv" - black (lustreless).
3. Two "Coily Cables" (preformed plastic-coated $\frac{1}{4}$ " steel cable), each 3/8" x 6'0", to be attached to horizontal rod by looping one end around rod and securing it by crimping an aluminum sleeve. Loop free end and secure loop in same manner. Eye-of-loop to accept 1 $\frac{1}{2}$ " x 1/8" bar stock.
4. All edges deburred and no sharp edges, welding spatter or slag. Connections to be workmanlike and neat.
5. Each pipe leg set in poured concrete (see Detail A). Minimum of 6" of concrete surrounding each leg.
6. Bicycle racks in groups of two or more shall be set parallel to each other and spaced 4' apart (o.c.) (see Detail B).



Personal business

A BUSINESS WEEK SUPPLEMENT

Reprinted from the June 8, 1981 issue of Business Week with special permission,
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If you are looking for some healthy exercise in the open air, why not combine it with gasoline conservation and join the estimated 1 million Americans who commute to their jobs by bicycle?

The idea is not nearly as daunting as you might think. If you live within 10 mi. of your office (the average commute is less than 6 mi.), biking is distinctly plausible—30 min. to 40 min. of relatively

The key is not the kind of bike you get—something between \$200 and \$300 will be sturdy enough to take the punishment of commuting, and light enough (28 lb. to 35 lb.) to save you a lot of effort. What counts in bike commuting is the amount of planning you put into it. Don't undertake a commute that will give you a real workout unless you have access to a shower and a change of

filter masks similar to the ones supplied to workers and patrolmen in vehicular tunnels. Others don't bother, on the ground that motorists probably suffer a higher concentration of exhaust pollutants in their blood than cyclists, who at least are out in the open.

High-traffic streets are not significantly more dangerous than low-traffic streets, by the way. One study raises the

Getting to work by bicycle

unhurried pedaling. If you plan your route carefully, you won't even work up a sweat. And if you commute by suburban train or intercity bus, a bike is often an ideal substitute for the station car. Some California cities—notably San Diego—even have bike racks on the backs of some buses, so you can take your wheels along with you. Commuters use them to get across the Coronado Bay Bridge, which bans bicycle traffic. Lincoln, Neb., is trying out the system, and so is Fairfield, Conn. Seattle has some buses fitted with front racks that carry two bikes.

You don't have to be especially athletic to bike to the office, although the few hardy souls who wheel to work 20 mi. away through all sorts of weather and traffic are generally constructed of seasoned hickory and stainless steel cable. Most experts counsel you not to be concerned much about physical condition. If you buy a machine from a professional bike shop that fits you properly, adjusting the seat height and handlebars for comfort and efficiency, you should have little trouble. If terrain is hilly, a 10-speed bike of the type that made bicycling popular nearly a decade ago will smooth out the grades. If your area is flat, a three-speed unit—an older type with the gears tucked into the rear hub—is perfectly adequate, easier to maintain, and less attractive to thieves. Some short-run commuters pedal along on ungeared, balloon-tired antiques with the kind of coaster brakes that require you to reverse the pedals to stop, and they are perfectly happy.

clothes at the end of it. Robert S. Williamson, a Boston architect and bicycle enthusiast, thinks that under an hour at moderate speeds on reasonably flat terrain is about as strenuous as you'll want to get and that a 5 mi. run is ideal—enough to be useful as exercise but not enough to ruin your day's grooming. That length of trip is also reasonably time-competitive with other transportation modes. Most bicycle commutes, in fact, are less than 3 mi., says Ralph Hirsch, legislative director of the League of American Wheelmen.

Work out your route, and work it out in advance, says Peter A. Campagna, president of the Boston Area Bicycle Coalition, one of the most active of regional bike promotion groups. Most routes are, of course, less than ideal, and you have to figure the tradeoffs—avoiding hills or avoiding traffic, swapping the direct route for the safest route. "One key," says Campagna, "is the width of the street and the extent of double parking. For that, Minneapolis is nice, Boston is not."

Making your way

For safety's sake, figure where you must make road crossings. If it's heavily traveled, don't be ashamed to climb down from your bike and walk across. And if carbon monoxide bothers you, work out alternate routes on quieter streets with less traffic.

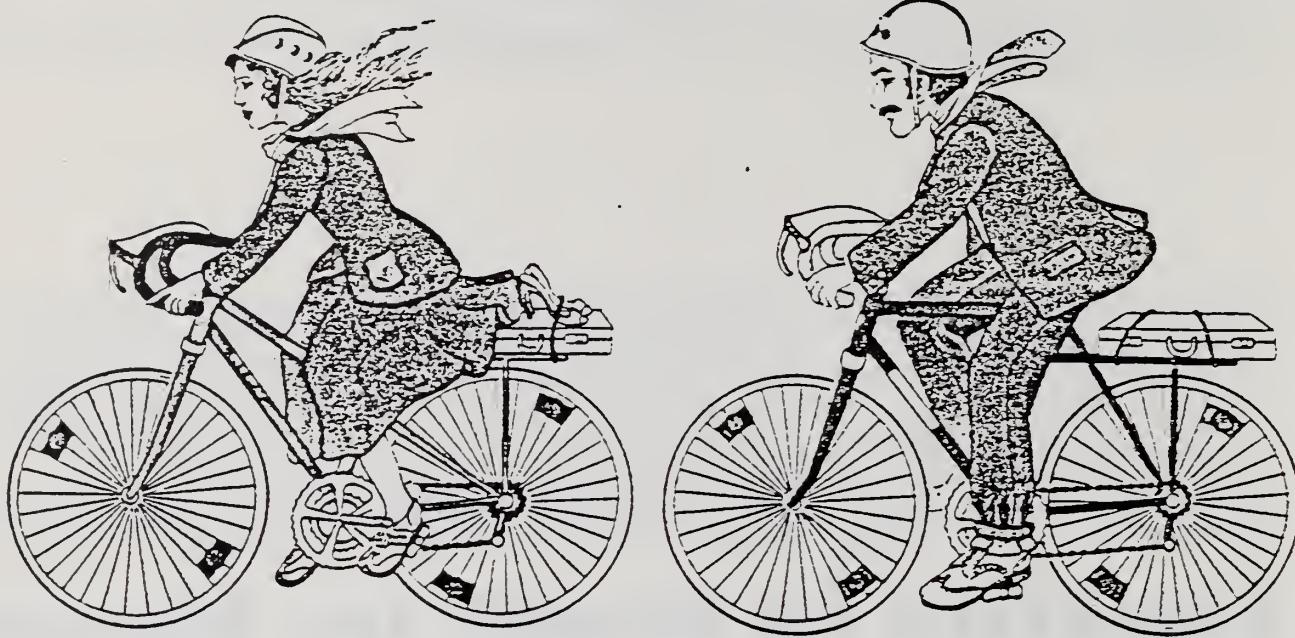
The pollution problem, by the way, is subject to much controversy in the bicycle world. Some bikers use industrial

likelihood of having an accident on a busy road by about 25%, far below what you'd expect. And the real fear in heavy traffic—being hit from the rear—is mostly unfounded. Only 4% of bike-car collisions are of that type. Most of them are on turns at intersections, and some really grisly accidents occur when a parked motorist suddenly swings open the door and the cyclist hits it. That's when a helmet comes in handy, since you are likely to go loop-the-loop and land on your head.

Curiously, those fearsome freeways are probably safer than any street—wide, smooth, flat shoulders, easy grades, limited access, and good distance from motorized traffic. Unfortunately, most limited access highways—except in California—ban bikes.

Whatever your route, work it out and stick to it, even if it gets dull. "The safest cycling records are held by commuters," says James C. McCullagh, editor and publisher of *Bicycling* magazine. "They travel the same route repeatedly, so they know where the dangers are and what to avoid."

If you are a novice, get to know your bicycle and ride around your neighborhood to get comfortable on your vehicle. Your goal is confidence and control. If your bike has the tricky 10-speed gears mounted on the tube just above the front wheel, get to the point where you can reach down and shift without taking your eyes off the road. If you are short you may be wise to have your bike fitted with the flat, flaring touring handlebars instead of the dropped, down-curving



MOSTOVICH
Michael Mostovich

racing bars. Since the brake levers are mounted at the grips, you won't have to lunge for them.

Before you take off for the day, test your bike. Make sure the wheels aren't brushing the metal forks that hold them in place. Make sure the brakes are positioned right. Squeeze the tires. They should be hard for a stable ride. Last of all, counsel the experts, lift the machine and bounce it up and down a few times—gently. You'd be surprised how often bits and pieces fall off.

Carry some tools: a European-type pump is essential—the tubular kind that operates like a slide trombone and is clipped to the down tube. (Don't forget to take it with you when you park; thieves love tire pumps.) Also essential is a patch kit, a set of bicycle tire irons, each about the size of a coffee spoon, an adjustable crescent wrench, and a screw driver. Bolts and screws are forever loosening under the impact of potholes and curbs. And carry a pair of cotton work gloves, since bicycles are some of the all-time-great grease carriers, especially around the drive chain and gear assembly. There's nothing messier than trying to free a chain that's wedged in the gears of a 10-speed bicycle. Keep your bike oiled, and get it in for service periodically. The critical parts: gears and gear changers, which pick up a shocking amount of grit from the road, wheels and spokes that go out of true, worn brake pads.

Learn how to change a flat tire. Most reputable bike shops will teach you on a slow day. If you really don't want to be

bothered, consider some of the new airless tires—actually solid rubber or foam tubes filled with trapped air cells that tuck into the tire. There's nothing to puncture, but the ride is considered stiff and jolting.

Act like a vehicle

On the road, says Janet Weinberg, a planner who is executive director of Transportation Alternatives, an organization dedicated to improving bike transportation in New York City, "act like a vehicle." What that means is to obey traffic signals, stop signs, and one-way restrictions. Some cyclists believe they are safer if they travel against the traffic, since they can see oncoming traffic and be seen. Experts disagree. A motorist turning into an intersection doesn't expect to be confronted with a bicycle. Go with the flow, and act predictably. If there's one rule of the road for cyclists, it's signal! Tell motorists where you're going. A danger spot is at intersections, where turning cars tend to cut you off.

If you're like most bicycle commuters, your real problems begin after your trip is over. What do you do with your bicycle? Although bicycle organizations have had some success with municipalities and companies since gasoline began its appalling price rise in 1974, biking is still not taken very seriously as alternative transportation. Accommodations for bicycle parking, even in the form of the most primitive racks, are still relatively rare: New York, Washington, D. C., Bos-

ton, and such college communities as Madison, Wis., and Davis, Calif., have reasonably successful programs. But in plenty of cities and suburban office complexes, cyclists get short shrift.

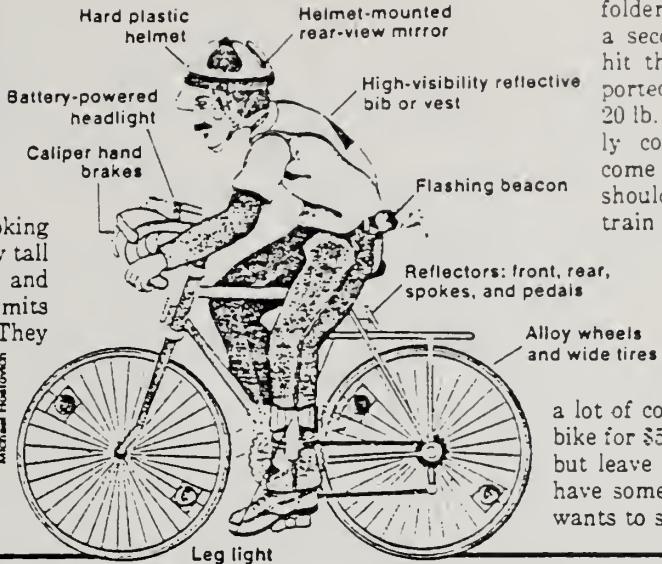
Sometimes it's just a matter of inertia, and a little pressure on your company will produce at least a bank of outdoor bicycle racks. Better than that are the lockable racks with a sliding pin that secures both front wheel and frame. And best of all are the bike lockers that are sprouting around the country, both at transit stations and in office buildings, in places such as Washington, D. C. The lockers are low metal containers with lockable doors. You back your bike in and slam the door. The locker system works best if you are permitted to lease the locker by the year. That way, you keep it locked even when you're not using it. Lockers left open tend to get vandalized.

In fact, everything connected with bicycle storage is subject to vandalism and theft, and it constitutes the biggest headache in bike commuting. So if you must leave your bike parked outside, take the pump, the tool kit, and if possible, the headlight with you. Get a good lock. Most chains are surprisingly vulnerable, and so are many locks. Most experts swear by the U-shaped metal shackle locks under the Citadel and Kryptonite 4 brand names. They are reasonably impervious to cutting and smashing, and they weigh less than a really awesome chain-and-lock set.

If you have a 10-speed bike with the standard quick-release front wheel, pull

the wheel when you park, set it by the rear wheel, and thread the lock through both wheels, the frame, and the parking stanchion. Or just carry the front wheel up to your office.

There's one other solution to the parking problem, of course: the folding bicycle. Folders are odd-looking things. They have small wheels, very tall seat tubes and handlebar stems, and some kind of arrangement that permits the frame to fold at a center hinge. They enjoyed some vogue in cities in the early 1970s, but the Consumer Product Safety Commission decided that they failed to meet some safety standards (for one thing, they occasionally folded up on you when you hit a bump). As a result,



folders virtually disappeared. Now, a second generation is starting to hit the market, most of them imported. They weigh anywhere from 20 lb. to 35 lb., fold into an amazingly compact space, and generally come with a carrying bag and a shoulder strap. You can ride to the train station, carry on your two-wheeled bundle with impunity, unfold it for the trip to the office, stuff it back in its bag, and take it upstairs.

And if you don't want to go to all the trouble, do what a lot of commuters do: Buy a used junk bike for \$50, get it in shape mechanically but leave the paint all scratched. You'll have something serviceable that no one wants to steal.

A guide to bike safety equipment

Bicycle equipment makers are well aware that bike riders are, with reason, obsessed with safety. And to cater to that obsession, bike shops can supply you with a seemingly endless array of clothing and accessories that you can put on, paste on, clip on, or bolt on. If you purchase all the gear and festoon it about your person and your machine, you will end up an object of curiosity and derision, and a distraction to the very motorists you want to ward off.

But a rock-bottom minimum of safety equipment is essential if you want to stay out of trouble on the road. First of all, wear a helmet. When bike riders die in accidents (and most fatalities involve an automobile), 80% of the deaths result from head injuries. Any bike shop has a selection of padded helmets made of high-impact plastic, but there's not a lot to choose from among them. Stay away from those swashbuckling racer's helmets that resemble a row of leather sausages stitched together. Serious bikers refer to them as "leather hairnets," and they are just about as useful in a fall. They were developed in Europe for indoor racing on a banked wooden track, and they are protection only against abrasive skid falls.

The drawback of most plastic helmets is that they are hot and will make you sweat. If that bothers you, there's a new lightweight plastic model that looks like a segmented orange, open at the top. It's obviously less protective than the standard models, but "most head injuries are to the sides, front, or back of the skull, not to the top," points out Gary D. MacFadden, publications director of Bikecentennial, an organization founded to promote national bike trails.

Make sure that your bicycle's wheels are made of one of the lightweight alu-

minum alloys rather than of steel. They may bend or dent (repairs can be made), but they won't crack unexpectedly. And, says John Benfatti, of New York's Bicycle Habitat shop, the alloys shed water better than steel and improve braking in wet weather. As for brakes themselves, the hand-operated caliper brakes that grip the wheel rims with rubber pads are considered more nimble and precise than the old pedal-operated coaster brakes of your childhood. At all costs, avoid those brake extension levers that some shops install along your handle bars as a convenience. Safety experts call them "death brakes." Because the leverage exerted from the extenders to the brake cables to the brakes themselves is inadequate, hitting the extenders will slow you down, but they won't stop you in an emergency.

Wide track. Get the widest tires you can find for your bicycle (1 1/4 in. on a 10-speed, 1 1/8 in. on a 3-speed). The wide profile gives better traction in wet conditions and reduces the likelihood that the tire will slip between the bars of a street grating, the bane of city cyclists. Depth of tread is not considered critical, although complex treads seem to reduce the chances of glass puncture.

You should have a rearview mirror of some kind. Riders look over their shoulders a lot, and when you do you tend to steer in the opposite direction. If you look back to the left at following traffic, there's a good chance you'll bump into a parked car to the right. A mirror mounted on the bike is easily stolen and the vibration makes it hard to use. So lots of experienced cyclists sport little mirrors clipped to the left side of their helmets, or to eyeglasses, or strapped to their wrists.

Most other bike safety equipment is

designed to make you visible in traffic. The easier it is to see you, the less chance of getting crushed by a car or by another bike. Consumer Product Safety Commission standards now require a full set of plastic reflectors—front, rear, on both sets of wheel spokes, and on pedals. If they break off, replace them. You have no idea how invisible a cyclist is at dusk to an approaching car or to a pedestrian. Get one of those orange reflective vests or one of the bibs tied with a drawstring and marked with a reflective cloth triangle or an X, and wear it on your back. If you use bicycle clips for your pants or slack cuffs, use the type made of reflective fabric.

Strap-ons. Get a strong, battery-operated headlight with a wide beam pointed slightly downward. The lights powered by a generator spinning along the wheel rim are okay, but they create some drag, and they don't work when you are stopped or slowed in traffic (some newer ones feed a small storage battery, though). If you want, use a rear light at night, or one of the stroboscopic flashing beacons clipped to your belt in back. A lot of riders use the popular strap-on lights. If you do, strap it to your calf, so it twinkles as you ride.

The whippy plastic rods with bright pennants on top that kids like on their bikes are not much in favor. The pennant is not that visible, and riders occasionally trip on the rod as they dismount from their bikes. Bike and rider end up in an undignified tangle on the ground. A newer flag device mounts horizontally low on the frame, and projects out about a foot, to warn off motorists. It may be self-defeating, though, says Bikecentennial's MacFadden. "Kids in cars tend to see how close they can come to brushing the flag," he explains.



